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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,846	04/15/2004	John M. Nieminen	07508-055001	6867

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EXAMINER	
BHAT, ADITYA S	
ART UNIT	PAPER NUMBER
2863	

NOTIFICATION DATE	DELIVERY MODE
07/09/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/824,846	NIEMINEN ET AL.	
	Examiner	Art Unit	
	ADITYA BHAT	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17 and 38-46* is/are pending in the application.

4a) Of the above claim(s) *38-46* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status

1. Claims 1-17 are currently pending in this application. Claims 18-37 have been canceled and 38-46 have been withdrawn from further consideration.

In order to place the application in better condition for allowance applicant may cancel the withdrawn claims.

Priority

2. Currently, no foreign priority has been claimed

Drawings

3. The drawings submitted on 4/15/2004 are in compliance with 37 CFR § 1.81 and 37 CFR § 1.83 and have been accepted by the examiner.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, it is not clear what position is being adjusted. Is applicant referring to the position of an object, the signal, etc?

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Govari (EP 1 203 560 A2) in view of Ashe (USPUB 2003/0011359)

With regards to claim 1, Govari teaches a distortion compensation method comprising:

Determining, on a computing device an undisturbed phase for at least one of a first position indication signal and a second position indication signal; (Page 3, paragraph 0020)

determining a disturbed amplitude and phase of the position indication signal; and adjusting a position indication based on the disturbed amplitude and phase, and the undisturbed phase, wherein the second frequency is different from the first frequency;(Page 7, paragraph 0051-0053)

Govari does not appear to teach determining an undisturbed ratio that relates the amplitude.

Ashe (USPUB 2003/0011359) teaches determining an undisturbed ratio that relates the amplitude. (page 6, paragraph 0061)

It would've been obvious to one of ordinary skill in the art at the time of the invention modify the Govari invention to determine the undisturbed amplitude ratio as taught by Ashe in order to provide a system which avoids loss of transmit field intensity with the intended operating volume. (Page 5, Paragraph 0035)

With regards to claim 2, Govari teaches calculating a relationship between the phases of the first position indication signal and the second position indication signal. (Page 6, paragraph 0046)

With regards to claim 3, Govari teaches determining a second undisturbed ratio that relates the amplitude of either of the first and the second position indication signals to the amplitude of a third position indication signal at a third frequency, (Page 6, paragraph 0046) and

adjusting a position indication is further based on the second undisturbed ratio. (Page 7, paragraph 0051-0053)

With regards to claim 4, Govari teaches the first frequency is a superior harmonic of the second position indication signal and the second frequency is a subordinate harmonic of the first position indication signal. (Page 6, paragraph 0046) The frequency corresponding to field H1 is considered to be the super harmonic and the subordinate is the frequency corresponding to field H2.

With regards to claim 5, Govari teaches the superior harmonic is the fundamental frequency. (Page 6, paragraph 0046) The frequency corresponding to H1.

With regards to claim 6, Govari teaches the subordinate harmonic is a third order harmonic. (Page 6, paragraph 0046) Frequency corresponding to H3.

With regards to claim 7, Govari teaches the first frequency is less than the second frequency. The frequencies of all the field generating coils will change depending on the location of the article that is introduced into the field. If it is introduced

at a location closer to the first coil then the frequency of the disturbed field will be greater at that coil then at the second and third coils.

With regards to claim 8, Govari teaches generating a plurality of frequencies using a multiple frequency waveform. (Page 6, paragraph 0048)

With regards to claim 9, Govari teaches the multiple frequency waveform is a chirped waveform. (Page 6, paragraph 0047) This section teaches a amplitude, frequency and phase. From this we can conclude that the signal must be a chirped waveform.

With regards to claim 10, Govari teaches the selected first frequency and second frequency are harmonically related. (see claim 4)

With regards to claim 11, Govari teaches the distortion compensation method is repeated for a plurality of position indication signals. (page 3, paragraph 0043-0046)

With regards to claim 12, Govari teaches detecting the presence of an eddy current in a conductive object. (Page 3, paragraph 0013)

With regards to claim 13, Govari teaches detecting the presence of an eddy current includes monitoring a ratio of the amplitude of the first position indication signal and the amplitude of the second position indication signal. (page 6, paragraph 0049)

With regards to claim 14, Govari teaches detecting the presence of an eddy current includes detecting a change in the undisturbed phase. (Page 3, paragraph 0011-0013)

With regards to claim 15, Govari teaches wherein determining the undisturbed phase includes measuring asymptotic phase values and using the asymptotic phase values to calculate the undisturbed phase. (page 7, paragraph 0051)

With regards to claim 16, Govari teaches determining the undisturbed phase includes iteratively calculating phase values and adjusting an asymptotic phase value, the asymptotic phase value used to calculate the undisturbed phase. (Page 3-4 paragraphs 0020-0021)

With regards to claim 17, Govari teaches receiving from a sensor the real components of the first and second position indication signals. (page 7, paragraph 0052) It is unclear how the sensor would detect an imaginary component of a signal. Imaginary components maybe used in calculations but it is unclear how they maybe sensed using a sensor.

Response to Arguments

8. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 4/7/2009 have been fully considered but they are not persuasive.

Applicant is reminded that during patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification." Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued,

will be interpreted more broadly than is justified. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

While the meaning of claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allowed. This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

In this instance applicant argues that the prior art of record does not teach an undisturbed field amplitude ratio at two distinct frequencies (Ashe,16-18;figure 2) using fields with multiple frequencies (Ashe,16-18;figure 2), and determining an undisturbed amplitude ratio that relates the amplitude of a first position indication signal at a first frequency to the amplitude of a second position indication signal at a second frequency, wherein the second frequency is different from the first frequency. (Govari;Page 7, paragraph 0051-0053) (Ashe;page 6, paragraph 0061) It should also be noted that in order to calculate the disturbed field the undisturbed field must be known to perform that calculation.

With regards to the USC 112 rejection applicant has clearly illustrated that a object is performing the distortion. However, examiner does not see the “object recited in the claims.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aditya S. Bhat whose telephone number is 571-272-2270. The examiner can normally be reached on M-F 9-5:30.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aditya Bhat/
Examiner, Art Unit 2863
July 5, 2009